REMARKS

General

The present amendment is in response to the Office Action dated October 19, 2005, where the Examiner indicates that Claims 1-20 are rejected. By the present amendment and response, Claims 1, 3, 5-8 and 10-13 have been amended and Claims 2 and 4 have been canceled without prejudice. Accordingly, Claims 1, 3 and 5-20 are pending in the present application. Reconsideration and allowance of pending Claims 1, 3 and 5-20 in view of the following remarks are respectfully requested.

Status of the Claims

Claims 1, 3 and 5-20 are pending in the subject application.

By this amendment:

Claims 1, 3, 5-8 and 10-13 have been amended.

Claims 2 and 4 have been canceled without prejudice.

Response to objection of Claims 5 and 10-12 due to informalities

The Examiner has objected to Claims 5 and 10-12 due to certain informalities. Applicants have amended claims 5 and 10-12 to overcome the Examiner's objections.

Claim 5 has been amended to correct a typographical error. Specifically, the word "photodiode" has been changed to "photodetector."

Claims 10-12 have been amended to incorporate the full text of the abbreviation "TH." Thus, the abbreviation "TH" has been changed to "track and hold."

Response to rejection of Claims 1-5, 7-10, 15-18 and 20 under 35 U.S.C. §102(b)

The Examiner has rejected Claims 1-5, 7-10, 15-18 and 20 under 35 U.S.C. §102(b) as being anticipated by **Sun** (USPN 5,239,181) (referred to hereinafter as "**R1**"). For the reasons discussed below, Applicants respectfully submit that the present invention as defined by amended independent Claims 1, 15 and 20 and associated dependent claims is patentably distinguishable over **R1**.

Pending amended independent Claim 1 is directed to an optically clocked optoelectronic track and hold apparatus including a diode bridge, which includes a first diode having a cathode operatively coupled to a first node and an anode operatively coupled to a second node; a second diode having a cathode operatively coupled to a third node and an anode operatively coupled to the first node; a third diode having a cathode operatively coupled to a fourth node and an anode operatively coupled to the second node; a fourth diode having a cathode operatively coupled to the third node and an anode operatively coupled to the fourth node; a first photodetector having a cathode operatively coupled to the second node and an anode operatively coupled to a negative potential node; and a second photodetector having an anode operatively coupled to the third node and a cathode operatively coupled to a positive potential node; a first current source operatively coupled to the second node of the diode bridge and a second current source operatively coupled to the third node of the diode bridge. With such a configuration, the optically clocked optoelectronic track and hold apparatus as defined in amended Claim 1 operates by tracking an input current when the diode bridge is forward biased and holding the input current value when an optical pulse is applied to the photodetectors, which causes the diode bridge to become reverse biased.

In stark contrast, **R1** fails to disclose, teach or suggest the above-recited limitations specified by amended Claim 1. **R1** discloses a hold and track apparatus having a diode bridge, which includes a first diode having a cathode operatively coupled to a first node and an anode operatively coupled to a second node; a second diode having a cathode operatively coupled to a third node and an anode operatively coupled to the first node; a third diode having a cathode operatively coupled to a fourth node and an anode operatively coupled to the second node; a fourth diode having a cathode operatively coupled to the third node and an anode operatively coupled to the fourth node; a first photodetector having an anode operatively coupled to the second node and a cathode operatively coupled to a positive potential node; and a second photodetector having a cathode operatively coupled to the third node and an anode operatively coupled to a negative potential node. **R1** operates normally in hold mode when the photodetectors are not illuminated and operates in track mode when the photodetectors are illuminated. I.e., the hold and track apparatus of **R1** operates by holding an input current when the diode bridge is reverse biased and tracking the input current value when an optical pulse is applied to the photodetectors, which causes the diode bridge to become forward biased.

R1 cannot result in the present invention as recited in amended independent Claim 1 because **R1** fails to disclose or remotely suggest an apparatus having a first photodetector having a cathode operatively coupled to the second node and an anode operatively coupled to a negative potential node; and a second photodetector having an anode operatively coupled to the third node and a cathode operatively coupled to a positive potential node; a first current source operatively coupled to the second node of the diode bridge and a second current source operatively coupled to the third node of the diode bridge. Thus, **R1** includes a photodetector configuration opposite of the present invention as defined in Claim 1, which causes **R1** to operate in a vastly different

manner than the present invention as defined in Claim 1. Specifically, **R1** operates normally in hold mode when the photodetectors are not illuminated and operates in track mode when the photodetectors are illuminated, whereas, the present invention as defined in Claim 1 operates normally in track mode when the photodetectors are not illuminated and operates in hold mode when the photodetectors are illuminated. Applicants believe amended Claim 1 further particularly points out and distinctly claims these limitations absent from cited references of record. As discussed above, independent Claim 1 is patentably distinguishable over **R1** and, as such, Claims 3 and 5-14 depending from independent Claim 1 are, *a fortiori*, also patentably distinguishable over **R1**.

The Examiner has rejected Claim 15 under 35 U.S.C. §102(b) as being anticipated by **R1** because "Sun et al's **[R1's]** apparatus inherently performs the claimed method steps (claims 15-18)." For the reasons discussed below, Applicants respectfully submit that the present invention as defined by independent Claim 15 and associated dependent claims is patentably distinguishable over **R1**.

Pending independent Claim 15 is directed to a method for optically clocked tracking and holding including the steps of (a) receiving an analog input signal and an optical input clocking signal, (b) determining whether an optical pulse is received by at least two photodetectors from said optical input clocking signal, (c) maintaining a diode bridge in forward bias and returning to STEP (a) if said optical pulse is not received from said optical input clocking signal, (d) switching said diode bridge to reverse bias for a desired time and returning to STEP (a) if said optical pulse is received from said optical input clocking signal. Thus, the present invention as defined in Claim 15 operates by tracking an input current when the diode bridge is forward

biased and holding the input current value when an optical pulse is applied to the photodetectors, which causes the diode bridge to become reverse biased.

In stark contrast, **R1** fails to disclose, teach or suggest the above-recited limitations specified by Claim 15. As described above, **R1** operates normally in hold mode when the photodetectors are not illuminated and operates in track mode when the photodetectors are illuminated. I.e., the hold and track apparatus of **R1** operates by holding an input current when the diode bridge is reverse biased and tracking the input current value when an optical pulse is applied to the photodetectors, which causes the diode bridge to become forward biased.

R1 cannot result in the present invention as recited in independent Claim 15 because **R1** fails to disclose or remotely suggest a method including the steps of (c) maintaining a diode bridge in forward bias and returning to STEP (a) if said optical pulse is not received from said optical input clocking signal, (d) switching said diode bridge to reverse bias for a desired time and returning to STEP (a) if said optical pulse is received from said optical input clocking signal because **R1** operates as a hold and track circuit.

The Examiner has rejected Claim 20 under 35 U.S.C. §102(b) as being anticipated by **R1**. For the reasons discussed below, Applicants respectfully submit that the present invention as defined by independent Claim 20 is patentably distinguishable over **R1**.

Pending independent Claim 20 is directed to an apparatus including means for maintaining a diode bridge in forward bias if said optical pulse is not received from said optical input clocking signal and means for switching said diode bridge to reverse bias for a desired time if said optical pulse is received from said optical input clocking signal. Thus, the present invention as defined in Claim 20 operates by tracking an input current when the diode bridge is

forward biased and holding the input current value when an optical pulse is applied to the photodetectors, which causes the diode bridge to become reverse biased.

In stark contrast, **R1** fails to disclose, teach or suggest the above-recited limitations specified by Claim 20. As described above, **R1** operates normally in hold mode when the photodetectors are not illuminated and operates in track mode when the photodetectors are illuminated. I.e., the hold and track apparatus of **R1** operates by holding an input current when the diode bridge is reverse biased and tracking the input current value when an optical pulse is applied to the photodetectors, which causes the diode bridge to become forward biased.

R1 cannot result in the present invention as recited in independent Claim 15 because **R1** fails to disclose or remotely suggest an apparatus including means for maintaining a diode bridge in forward bias if said optical pulse is not received from said optical input clocking signal and means for switching said diode bridge to reverse bias for a desired time if said optical pulse is received from said optical input clocking signal because **R1** operates as a hold and track circuit.

Accordingly, Applicants respectfully submit that the rejection of Claims 1, 3, 5, 7-10, 15-18 and 20 has been traversed, and that independent Claims 1, 15 and 20 and corresponding dependent claims should now be allowed.

Response to rejection of Claims 6, 11-14 and 19 under 35 U.S.C. §103(a)

The Examiner has rejected Claims 6, 13, 14 and 19 under 35 U.S.C. §103(a) as being unpatentable over **R1**. For the reasons discussed below, Applicants respectfully submit that the present invention, as defined by Claims 6, 13, 14 and 19, are patentably distinguishable over **R1**.

The Examiner has rejected Claims 6, 13 and 14 under 35 U.S.C. §103(a) as being unpatentable over **R1** because "selecting a specific manner for operating the photodetectors

would have been obvious to one of ordinary skill in the art." Pending Claims 6, 13 and 14 directly or indirectly depend from amended Claim 1. As discussed above, pending Claim 1 has been amended to include the limitations of a diode bridge, which includes a first diode having a cathode operatively coupled to a first node and an anode operatively coupled to a second node; a second diode having a cathode operatively coupled to a third node and an anode operatively coupled to the first node; a third diode having a cathode operatively coupled to a fourth node and an anode operatively coupled to the second node; a fourth diode having a cathode operatively coupled to the third node and an anode operatively coupled to the fourth node; a first photodetector having a cathode operatively coupled to the second node and an anode operatively coupled to a negative potential node; and a second photodetector having an anode operatively coupled to the third node and a cathode operatively coupled to a positive potential node; a first current source operatively coupled to the second node of the diode bridge and a second current source operatively coupled to the third node of the diode bridge, which **R1** fails to disclose, teach or suggest the above-recited limitations specified by amended Claim 1. Further, the Examiner fails to provide documentary support (e.g., issued patent or published article) to support the Examiner's assertions regarding things that "would have been obvious to one of ordinary skill in the art." If the Examiner is relying upon common knowledge or official notice, then Applicants respectfully submit that the Examiner's assertions are neither common knowledge nor subject to official notice under the requirements detailed in MPEP section 2144.03. Applicants request that the Examiner withdraw such statements or provide documentary support for such. Accordingly, Applicants respectfully submit that rejection of Claims 6, 13 and 14 depending from Claim 1 have been traversed, and that Claims 6, 13 and 14 should now be allowed.

The Examiner has rejected Claim 19 under 35 U.S.C. §103(a) as being unpatentable over **R1** because "the proposed system of **[R1]** inherently performs the claimed method steps of claim 19." Pending Claim 19 directly depends from Claim 15. As discussed above, **R1** cannot result in the present invention as recited in independent Claim 15 because **R1** fails to disclose or remotely suggest a method including the steps of (c) maintaining a diode bridge in forward bias and returning to STEP (a) if said optical pulse is not received from said optical input clocking signal, (d) switching said diode bridge to reverse bias for a desired time and returning to STEP (a) if said optical pulse is received from said optical input clocking signal because **R1** operates as a hold and track circuit. Further, the Examiner fails to state the reasons for rejecting Claim 19 based on 35 U.S.C. §103(a). Accordingly, Applicants respectfully submit that rejection of Claim 19 has been traversed, and that Claim 19 should now be allowed.

The Examiner has rejected Claim 11 under 35 U.S.C. §103(a) as being unpatentable over **R1** in view of **Taddiken** (USPN 5,455,584) (referred to hereinafter as "**R2**"). For the reasons discussed below, Applicants respectfully submit that the present invention, as defined by Claim 11 depending from independent Claim 1, is patentably distinguishable over **R1** in view of **R2**. Pending Claim 1 has been amended to include the limitations described above. Pending amended independent Claim 1 is directed to an optically clocked optoelectronic track and hold apparatus including a diode bridge, which includes a first diode having a cathode operatively coupled to a first node and an anode operatively coupled to a second node; a second diode having a cathode operatively coupled to a third node and an anode operatively coupled to the first node; a third diode having a cathode operatively coupled to a fourth node and an anode operatively coupled to the second node; a fourth diode having a cathode operatively coupled to the third node and an anode operatively coupled to the fourth node; a first photodetector having a

cathode operatively coupled to the second node and an anode operatively coupled to a negative potential node; and a second photodetector having an anode operatively coupled to the third node and a cathode operatively coupled to a positive potential node; a first current source operatively coupled to the second node of the diode bridge and a second current source operatively coupled to the third node of the diode bridge. In stark contrast, **R1** and **R2** do not, singly or in combination teach, disclose, or suggest an apparatus that includes the above-recited limitations specified by Claim 1. MPEP §2143.03 states that if any independent claim is non-obvious under 35 U.S.C §103, then any claim depending therefrom is nonobvious. Therefore, dependent claims, which depend from independent Claim 1 are patentable over the cited references for the above-stated reasons. Accordingly, Applicants respectfully submit that rejection of Claim 11 has been traversed, and that Claim 11 should now be allowed.

The Examiner has rejected Claim 12 under 35 U.S.C. §103(a) as being unpatentable over **R1** in view of **R2** and in further view of **Metz** (USPN 4,659,945) (referred to hereinafter as "**R3**"). For the reasons discussed below, Applicants respectfully submit that the present invention, as defined by Claim 12 depending from independent Claim 1, is patentably distinguishable over **R1** in view of **R2** and in further view of **R3**. Pending amended independent Claim 1 is directed to an optically clocked optoelectronic track and hold apparatus including a diode bridge, which includes a first diode having a cathode operatively coupled to a first node and an anode operatively coupled to a second node; a second diode having a cathode operatively coupled to a third node and an anode operatively coupled to the first node; a third diode having a cathode operatively coupled to a fourth node and an anode operatively coupled to the second node; a fourth diode having a cathode operatively coupled to the third node and an anode operatively coupled to the fourth node; a first photodetector having a cathode operatively

coupled to the second node and an anode operatively coupled to a negative potential node; and a second photodetector having an anode operatively coupled to the third node and a cathode operatively coupled to a positive potential node; a first current source operatively coupled to the second node of the diode bridge and a second current source operatively coupled to the third node of the diode bridge. In stark contrast, **R1, R2** and **R3** do not, singly or in combination teach, disclose, or suggest an apparatus that includes the above-recited limitations specified by Claim 1. MPEP §2143.03 states that if any independent claim is non-obvious under 35 U.S.C §103, then any claim depending therefrom is nonobvious. Therefore, dependent claims, which depend from independent Claim 1 are patentable over the cited references for the above-stated reasons. Accordingly, Applicants respectfully submit that rejection of Claim 12 has been traversed, and that Claim 12 should now be allowed.

Conclusion

Applicants respectfully submit that Claims 1, 3 and 5-20 of the present application are now in condition for allowance.

The fee of $120.00 for a one-month extension of time to file a response to Office Action is included in this response.

Respectfully submitted,

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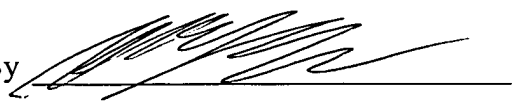
By 

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